Five-Year Plan for the Waste Tire Recycling Management Program (Seventh Edition Covering Fiscal Years 2013/14-2017/18) Report to the Legislature

CalRecycle
California Department of Resources Recycling and Recovery

March 2013

STATE OF CALIFORNIA

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Acknowledgments

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Introduction

Senate Bill (SB) 876 (Escutia, Statutes of 2000, Chapter 838) was a comprehensive measure enacted to extend and expand California's regulatory program related to the management of waste and used tires. One of the key provisions of this measure requires the Department of Resources Recycling and Recovery (CalRecycle) to adopt and submit to the legislature a Five-Year Plan (Plan) that identifies priorities, performance criteria, and budget allocations. In addition, it requires that the plan be updated every two years.

This seventh revision of the Five-Year Plan has been developed based on the experience gained from previous programs and projects and input from public and private stakeholders, other states and counties, contractors, and staff, as well as a public meeting in October 2012 to obtain stakeholder input on a draft of this biennial update. Over the years many reports and studies have been undertaken since the Tire Program began. One of the first reports, entitled *California Waste Tire Program Evaluation and Recommendations: Final Report* (Pub. #540-99-006, also referred to below as the AB 117 report), included recommendations to address such waste tire issues as elimination of waste tire stockpiles; protection of public health, safety, and the environment; and an increase in sustainable economic markets for waste tires in California. Many of the recommendations in the report required by Assembly Bill (AB) 117 (Escutia, Statutes of 1998, Chapter 1020) (AB 117 report) provided the foundation for the original plan. Other reports and studies[1] concerning tire-related issues and the Waste Tire Market Development Program Evaluation Project that was completed in 2010 also have provided guidance to CalRecycle for setting priorities.

The enforcement elements of the program are designed not only to protect public health, safety, and the environment but also to provide for a fair and consistent marketplace for recycled tires. CalRecycle has moved aggressively to expand tire enforcement efforts and revise current regulations. Technical assistance and training are offered to the regulated community that includes tire haulers, tire generators and permitted tire facilities. However, if a business demonstrates an unwillingness to comply, and is not responsive to technical assistance and training, then CalRecycle initiates enforcement action. Tire facility permitting, coupled with expanded and robust statewide enforcement efforts, is working to ensure a level playing field for tire facilities, haulers, and generators who operate within the law.

The overall waste tire diversion rate increased significantly from 81 percent in 2010 to 88 percent in 2011. This increase was largely a result of the continued, unprecedented rapid growth in the export of waste tires to Pacific Rim nations, largely for use as tire-derived fuel (TDF), which is now the largest single end-use destination for California waste tires. If waste tire exports, TDF, and use as alternative daily cover are not included, then the diversion rate is only 44%, Moreover, 5 million tires were landfilled in 2011.

CalRecycle's goal continues to be achieving 90 percent diversion of waste tires from landfills[2] by the year 2015.[3] Affiliated goals include the following:

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[1] Past reports and studies can be accessed through CalRecycle's Publications Catalog at http://www.calrecycle.ca.gov/Publications/default.asp?cat=16

[2] CalRecycle's 90 percent goal is not codified in statute but reflects CalRecycle's strategic directives.

- developing long-term, sustainable, and diversified market demand for California tire-derived products;
- developing a high-quality supply infrastructure to meet that demand; and
- fostering information flow and technology and product development so that diversion goals are achieved with supply and demand in balance.

While the overall tire diversion rate is approximately 88 percent, as noted above a significant portion of that is due to exports overseas and TDF. Through further market development programs, the goal is to increase processing of California waste tires into tire-derived products made in California. To move CalRecycle towards this goal, a new pilot tire incentive program will be established in FY 2013/14. This pilot program would enable participating manufacturers to increase sales to businesses. This approach is consistent with CalRecycle's new policy goal that not less than 75% of the solid waste generated be source reduced, recycled, or composted by 2020.

Program Elements

The Five-Year Plan is divided into the program elements identified in Public Resources Code (PRC) section 42885.5(b). These elements are:

- Enforcement and Regulations Relating to the Storage of Waste and Used Tires.
- Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State.
- The Waste and Used Tire Hauler Program and Manifest System.
- Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires.
- Market Development and New Technology Activities for Waste and Used Tires.

Each of the program elements consists of five sections:

1. *Program Background and Status*. This section will include background information, a summary of achievements, and an overview of planned activities.
2. *Direction Provided by SB 876*. This section lists the specific statutory language that directs the particular program element.
3. *Objectives*. This section lists the objectives the program element is designed to achieve.
4. *Performance Measures*. This section identifies how individual or groups of related element activities can be measured to show how well objectives and goals are met.
5. *Activity Description and Budget*. This section includes an overall chart of element activities and describes each activity with associated budget information by fiscal year.

Budget and Summary

The seventh edition of the Five-Year Plan presents the following budget for CalRecycle's Tire Program for Fiscal Years 2013/14 through 2017/18. The tire fee is currently scheduled to be reduced from $1.75 to

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[3] CalRecycle's diversion estimates and goal are based on the number of whole tires that are used to make products or flow to other non-landfill locations; they are not adjusted for residuals such as fluff and steel.

$0.75 on January 1, 2015. The proposed expenditures reflect the spending authority limit for the Tire Program as outlined in the Governor's budget.

Table 1: Total Tire Program Funding for Fiscal Years 2013/14-2017/18**

Program Areas	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	Totals for All Fiscal Years
Enforcement	$7,835,000	$7,585,000	$7,585,000	$7,585,000	$7,585,000	**$38,175,000**
Hauler and Manifest Program	$450,000	$450,000	$450,000	$450,000	$450,000	**$2,250,000**
Cleanup*	$2,600,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	**$14,600,000**
Research	$1,000,000	$500,000	$500,000	$500,000	$500,000	**$3,000,000**
Markets	$9,648,747	$10,398,747	$10,398,747	$10,398,747	$10,398,747	**$51,243,735**
Program Staffing and Administration	$7,501,517	$7,501,517	$7,501,517	$7,501,517	$7,501,517	**$37,507,585**
Administration	$1,924,244	$1,924,244	$1,924,244	$1,924,244	$1,924,244	**$9,621,220**
Mandatory Contracts	$1,375,492	$1,375,492	$1,375,492	$1,375,492	$1,375,492	**$6,877,460**
Totals	**$32,335,000**	**$32,735,000**	**$32,735,000**	**$32,735,000**	**$32,735,000**	**$163,275,000**

** The cleanup element includes the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program. Its spending authority is separate from the Tire Fund's spending authority.*

***The Tire Fee is scheduled to be reduced to 75 cents on January 1, 2015; however CalRecycle's spending authority will remain unchanged until adjustments are made through an approved Budget Change Proposal and included in the State's Enacted Budget. CalRecycle estimates that sufficient funds exist in Tire Fund to support the current level of expenditures, and will closely monitor the impact of the January 1, 2015, fee reduction on the revenue, Fund balance, and cash flow to determine if further adjustments are necessary.*

Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Enforcement Program Background and Status

The Tire Enforcement Program's primary goal is to manage and mitigate the impacts of tires on public health and safety, and the environment, by ensuring that tire businesses comply with tire permitting, storage, and movement laws, regulations, and state minimum standards. Compliance is monitored through integrated and consistent permitting, inspection, and enforcement efforts. CalRecycle works closely with state and local governments to:

- inspect tire businesses for compliance with permitting, storage, and movement laws, regulations, and state minimum standards;
- educate tire businesses and property owners about tire laws and regulations;
- look for illegal dumping, storage, and movement of tires; and,
- take enforcement actions as needed to correct violations.

CalRecycle's waste tire enforcement program is closely aligned and cooperatively administered with other cleanup-related components in the Five-Year Plan. For example, enforcement actions against the largest known waste tire sites in Sonoma County resulted in negotiated settlements with cleanups administered by CalRecycle's Cleanup Branch. Vigorous waste tire enforcement pursuant to CalRecycle's Strategic Directives minimizes the chances for large tire sites to develop and to go unaddressed and for subsequent environmental crises like the Westley and Tracy tire fires to occur. The costs for long-term remediation as part of the Five-Year Plan's Cleanup and Remediation element have been significantly reduced and are expected to continue to be positively impacted in future years.

The Tire Enforcement Branch and Cleanup Branch cooperate with the Financial Resources Management (FiRM) Branch on the administration of the Farm and Ranch Solid Waste Cleanup and Abatement (FR), Local Government Amnesty (TA), and Local Government Waste Tire Cleanup (TCU) grant programs. For example, when enforcement staff discovers waste tire piles are on privately owned agricultural property, and the tire piles are determined not to be the responsibility of the landowner, the Tire Enforcement Branch brings them to the attention of the FiRM Branch staff for potential grant consideration. Conversely, grant applications for Farm and Ranch grants, which are independently received, where landowner certifications of non-responsibility cannot be obtained, are referred to the Tire Enforcement Branch for appropriate follow-up. Over time, concerted enforcement action to reduce illegal waste tire disposal is expected to reduce the need for grant funds in the TA, TCA, and FR grant programs.

The Tire Enforcement Branch coordinates with the FiRM Branch to implement the Local Government Waste Tire Enforcement (TEA) Grant Program that supports the activities of 46 local jurisdictions in CalRecycle's waste tire enforcement efforts and also coordinates with and provides support for CalRecycle's illegal dumping initiatives. Waste tires are often illegally dumped along with other solid waste. Therefore, waste tire program field personnel and the surveillance support available through the TEA Grant Program can, in many instances, be leveraged to address both waste tire and other illegal dumping objectives.

CalRecycle's Tire Enforcement Branch is aligned with Cal/EPA's enforcement initiatives, which include a progressive enforcement program. When a violation is first identified (the first offense) a standard Notice of Violation is issued. If the violation is not corrected or is a repeat of past violations, the following enforcement actions are taken until the violation has been resolved:

- Cleanup and Abatement Orders (for illegal tire piles only);
- Administrative Complaints; and,
- Referrals to local district attorney's offices and the California Attorney General's office.

Civil and criminal actions are reserved for egregious violations and/or repeat offenders.

Since many of the initial legacy piles have been brought into compliance, CalRecycle has redirected resources to focus more on maintenance and prevention of illegal tire piles through permitting, inspection, and the waste tire hauler registration and manifest programs. Additionally, ongoing ground and aerial surveillance assist enforcement efforts by identifying remote illegal tire sites and illegal activities of tire businesses. These programs, especially inspection and surveillance programs generate enforcement cases on an ongoing basis.

Prior to 2002, most of the inspections, investigations, and enforcement efforts were conducted by five CalRecycle field staff, and their efforts focused on enforcement of cases identified through complaints and referrals from other agencies. In 2010 a Budget Change Proposal (BCP) was approved and CalRecycle internally redirected an additional 10 staff to augment the waste tire inspection efforts. CalRecycle has also significantly increased the number of local agencies engaged in tire enforcement activities through the TEA Grant Program.

Objectives

The enforcement program has the following objectives:

1. Support existing and new waste tire enforcement grantees by providing stable funding, training, and ongoing technical assistance.
2. Inspect tire businesses on a routine basis to assure compliance with all state tire permitting, storage, and movement laws, regulations, and state minimum standards.
3. Provide ongoing surveillance for illegal tire sites. Identify and investigate all suspected illegal tire sites through ground and aerial surveillance and respond to complaints.
4. Bring all known sites that are operating illegally (without the proper permits and/or operating outside the terms and conditions of their permits, or state minimum standards) into compliance through a progressive enforcement program.
5. Manage a tire database that will collect and store the necessary information for an effective program.

Performance Measures

The sixth edition of the Five-Year Plan contained four performance measures for the Enforcement Element, which are listed along with accomplishments for the previous fiscal year in Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

1. **Inspections:**
    a. Inspect all active major and minor permitted facilities at least once every fiscal year.
    b. Inspect all active registered haulers at least once every two fiscal years.
    c. Inspect all active generators at least once every three fiscal years.
    d. Monitor the results of inspections by compiling comparative annual data of the number of inspections performed, Notices of Violations issued, and referrals made to the Board (now CalRecycle).

2. **Surveillance:**
    a. Monitor the effectiveness of surveillance activities by compiling comparative annual data of illegal tire piles identified via grantee or CHP surveillance.

3. **Non-Compliant Tire Businesses:**
    a. Monitor the effectiveness of progressive enforcement actions by compiling comparative annual data of enforcement actions initiated and resolved.

4. **Grant Program:**
    a. Increase or maintain waste tire enforcement grantee coverage in the state to 80 percent or more of active tire businesses for each fiscal year.
    b. Conduct at least two grantee roundtables per fiscal year.
    c. Participate in the Annual Tire Conference.
    d. Monitor the effectiveness of the grant program by compiling comparative annual data of grant funds awarded and expended.

Activity Description and Budget

The enforcement program will implement a two-pronged approach to statewide enforcement which will use local enforcement entities wherever possible and state resources in "gap" areas. The waste tire enforcement program will provide ongoing assistance to local jurisdictions and oversee the entire effort. Table 2 provides a list of activities and associated budgets for the Enforcement and Regulations Relating to the Storage of Waste and Used Tires Element.

Table 2: Budget for Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Program Area	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Waste Tire Enforcement Support Activities	$370,000	$370,000	$370,000	$370,000	$370,000
Enforcement Case Assistance	$50,000	$50,000	$50,000	$50,000	$50,000
Local Government Waste Tire Enforcement Grant Program	$7,000,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
Database System Maintenance and Enhancement	$415,000	$165,000	$165,000	$165,000	$165,000
Totals	**$7,835,000**	**$7,585,000**	**$7,585,000**	**$7,585,000**	**$7,585,000**

1. **Waste Tire Enforcement Support Activities:** This line item has changed over time based on needs and lessons learned. It combines several activities and agreements that will support the overall mission of enforcing the laws regarding the hauling and disposal of waste and used tires in the State of California and along the California/Mexico border region and illegal activities related to export of tires through California ports. This combined activities approach will provide flexibility with respect to program funding for each activity. Funds will be allocated to the following projects:

   - **California Highway Patrol (CHP) Agreement to Support Enforcement Activities:** In fiscal year 2011/12 CHP was unable to enter into an agreement due to staffing issues. However in June-2012 CalRecycle entered into a new agreement with CHP to continue its support to CalRecycle's field efforts in the areas of ground and aerial surveillance, covert and overt investigations, inspector security, training for state and local law enforcement officers, and roadside checkpoints to assist CalRecycle as well as local enforcement personnel. If CHP is unable to continue this work after the current contract expires in June 2015due to budget or priority issues, CalRecycle will pursue a similar agreement with other law enforcement agencies. This effort includes a surveillance and enforcement support focus on illegal activities related to tire exports through California ports and in the California/Mexico border region.

   - **Satellite Surveillance Project:** CalRecycle had two contracts that used satellite imagery to review and analyze large sections of land to determine whether the technology was useful and whether staff could generate such maps quickly and easily in-house. The technology was useful in finding tire piles located in remote and isolated areas of Central and Northern California having limited visual access and the large desert regions in Southern California including the California/Mexico border region. However, use of the technology requires use of highly trained and skilled aerial photo interpreters, so the Board (now CalRecycle) directed staff to consider future contracts if/when the technology is more readily usable by staff.

   - **Air Resources Board (ARB) Surveillance Assistance:** In Fiscal Year 2011/12 ARB was unable to enter into an agreement with CalRecycle. CalRecycle is working to resolve the issues and enter into a new agreement with ARB. This activity supports field investigative efforts by CalRecycle and local enforcement waste tire grantees. The ARB has extensive experience in assisting other agencies in the purchase, maintenance, monitoring, and use of both covert and overt surveillance equipment. ARB's expertise has aided and should continue to aid CalRecycle and local waste tire grantees in their efforts to deter, or find and prosecute those individuals who illegally haul or dispose of tires and illegal activities related to tire exports through California ports. Additionally, work should be done toward procuring more sophisticated surveillance equipment for covert activities allowing real-time remote monitoring and sensing.

   - **Analysis of Targeted Study Areas for Waste Tire Enforcement:** Provide site/topic specific studies that target issues relating to the enforcement of used and waste tire laws in California. This activity will provide CalRecycle with the flexibility to respond to situations that arise, which may not have been previously under consideration. For instance, Senate Bill 772 (Ducheny, Chapter 214, Statutes of 2005) required the Board (now CalRecycle) to track the flow of both

legal and illegal waste and used tires through the California/Mexico border. *Note: The California/Mexico border tire flow report was completed and there are no plans to do another report at this time.*

- **Training Support for Waste Tire Enforcement Inspectors and Managers**: This activity continues work with law enforcement to provide comprehensive and up-to-date training that focuses on tire enforcement and environmental compliance in support of training for both law enforcement and grantees. In addition, funds will be used to supplement the tire portion of CalRecycle's annual enforcement conference for local agencies. Training provides inspectors and managers with up-to-date information on CalRecycle's waste tire management programs and grants, as well as a venue to network and discuss other items of interest. Other outreach activities may also be held during the year.

- **Attorney General's Assistance for Tire Enforcement Issues:** Starting in FY 2012/13 CalRecycle entered into a pilot agreement with the Attorney General's office to assist with tire enforcement cases. These cases primarily relate to tire exports from California ports. CalRecycle will evaluate the results of the pilot project.

Activity Funding
FYs 2013/14-2017/18……. $370,000 per fiscal year

2. **Enforcement Case Assistance:** CalRecycle's Legal Office generally prosecutes administrative enforcement penalty actions to ensure uniformity of enforcement and to expedite processing. However, criminal and certain civil enforcement cases must be referred to the attorney general's office or local district attorneys' offices. Unfortunately, some rural jurisdictions do not have the resources to handle waste tire misdemeanor cases. In fiscal year 2001/02, CalRecycle established a two-year pilot program with the California District Attorneys Association to assist these jurisdictions. While the pilot project proved successful early on, recently the California District Attorneys Association has not been able to utilize the funding provided. Therefore, CalRecycle will no longer fund work with the California District Attorneys Association. CalRecycle will continue to work with authorized enforcement organizations as contractor(s) or grantee(s) for investigative and prosecutorial services to pursue criminal or civil enforcement actions including enforcement actions related to tire exports from California ports.

   Activity Funding
   FYs 2013/14- 2017/18……..…….$50,000 per fiscal year

3. **Local Government Waste Tire Enforcement Grant Program:** PRC section 42889(d) allows CalRecycle "to consider designating a city or county, or city and county as the enforcement authority of regulations relating to the storage of waste and used tires." This section also states that if CalRecycle designates a local entity for this purpose, it must provide sufficient, stable, and noncompetitive funding to that entity, based on available resources.

The purpose of this grant program is to enhance the statewide waste tire enforcement infrastructure in California. This grant program will augment CalRecycle's enforcement efforts in overseeing the proper management and flow of waste tires throughout the state. Eligible county and city jurisdictions can use these grant funds to identify waste tire sites, conduct waste tire facilities inspections, investigate illegal tire disposal activities, review waste tire hauler documents, issue Notices of Violation, and ensure that tire dealers, auto dismantlers, tire haulers, and others comply with all applicable laws, storage standards, and manifest requirements. The priorities for this grant program are to:

- Offer a sufficient, stable, and non-competitive funding source;
- Ensure consistent statewide inspection and enforcement coverage;
- Ensure cost-effective and successful local waste tire enforcement programs;
- Streamline the grant program application, annual renewal, and reporting process;
- Conduct evaluations to assess grantee performance and enforcement program effectiveness.

Participation in this grant program continues to increase. There were just eight grantees in FY 2001/02, and 46 in FY 2011/12. As a direct result of the waste tire enforcement grants, local agencies have a much more vital and expanded role in enforcement.

Activity Funding
FYs 2013/14-2017/18……..…….$7,000,000 per fiscal year

4. **Database System Maintenance and Enhancement:** CalRecycle developed the Waste Tire Management System (WTMS) to track tire enforcement and manifest program activities. The database system was developed per the requirements defined in the approved feasibility study report. The system tracks waste tire generators, registered haulers, permitted and unpermitted end use facilities, manifest forms, inspection forms, and enforcement actions.

   The system was initially released in July, 2003, and has continued to meet requirements through continued maintenance and enhancement at an annual cost of $165,000 per fiscal year. Areas of ongoing maintenance and enhancement include:

   - Standard reports to track facility inspections, waste tire storage permits, grantee referrals, and Notice of Violations to ensure performance measures are achieved.
   - Ongoing enhancements to compliance reports that assist grantees with inspection prioritization and planning.
   - Ongoing maintenance that includes revising inspection forms, entering into contracts to have inspections forms and other documents scanned and entered into the database on an ongoing basis.
   - Additionally, periodic upgrades to the system are anticipated as the program continues to grow and change to meet the needs of our internal and external stakeholders as well as reporting requirements requested by Cal/EPA.

There have been substantial changes made to WTMS over the years to expand functionality and to reflect changes in the tire program business requirements. While WTMS meets the primary existing business needs of the program, the Information Technology Services Branch (IT Services) regularly evaluates existing systems and their technology platform as part of an ongoing process to continually enhance the application development environment used for building automated systems at CalRecycle.

The current areas of focus for the WTMS business requirements assessment shows that substantial benefits could be realized by improvements in one or more these major areas:

- Paperless services for grantees to submit their mandated facility inspection data. This includes web-based services for receiving electronic data (batch EDT); mechanisms to ensure submissions are complete and accurate, and revised Survey and Inspection forms that are compatible with electronic data submission.
- Development of a web-portal for haulers to complete their waste tire hauler applications online, maintain their list of vehicles, and identify new facilities where they are conducting tire transactions.
- Improvements to existing waste tire manifest EDT portal would increase usability, provide a cleaner interface, and help generate the reports needed for compliance and accounting.
- Analysis of and evaluation of alternatives for addressing data integrity issues.
- Analysis of and evaluation of alternatives for reducing errors in data at the time of submission/upload.
- Reassessment of reporting capabilities.

These assessments, specifications, and possible enhancements will include appropriate documentation and review. Proof-of-concept demonstration systems will be developed, where possible, to demonstrate the proposed capabilities of any new or revised automated system.

Activity Funding

FY 2013/14…….....$415,000*

FYs 2014/15-2017/18……. .....$165,000 per fiscal year

*An additional $250,000 has been allocated to hire an experienced Information Technology contractor to assist with the assessment effort.

Waste and Used Tire Hauler Program and Manifest System

Hauler and Manifest Program Background and Status

The original waste tire manifest system was created in 1995 to provide documentation of waste tire transactions between the tire generator, tire hauler, and the end-use facility. A copy of the manifest form was left with each of the respective parties as proof of the tire transaction. The form was retained at the place of business for three years so it could be reviewed by CalRecycle staff or authorized representatives if requested. Unfortunately, since the information was not provided directly to CalRecycle, there was no simple way to track tire movement.

To better track the flow of waste and used tires in California, the Legislature passed SB 876 (Escutia, Statutes of 2000, Chapter 838), which required the Board (now CalRecycle) to develop and implement a uniform statewide waste and used tire manifest program. The California Uniform Waste and Used Tire Manifest System developed pursuant to this law went into full-scale operation in July 2003. This legislation stated that every person who transported 10 or more waste or used tires would have to hold a valid tire hauler registration and use state-issued decals and manifests. Prior to obtaining registration, a prospective hauler would also be required to post a $10,000 bond. In addition, tire haulers would have to register annually with CalRecycle, possess manifests during the transport of waste or used tires, and transport only to legally authorized end-use facilities. Tire generators, haulers, and end use facilities all had to submit the completed manifest forms to CalRecycle. The law also required that a person who received waste/used tires from an unregistered hauler had to report that hauler to CalRecycle by providing the name, address, phone number, and license plate number of the unlicensed hauler, and the amount of tires.

The Tire Hauler and Manifest Program consist of two separate components: registration and manifesting. Enforcement efforts against tire haulers have resulted in significant fines summarized in the Enforcement Program element. Currently, CalRecycle registers more than 1,400 California waste and used tire haulers and more than 7,500 vehicles. Registrations expire annually at the end of each calendar year. CalRecycle sends renewal packages to registered haulers well before the end of the year to ensure haulers can renew their registrations in a timely manner. Tire haulers who do not renew their registrations by the end of the calendar year are cancelled.

Current law allows exemptions from waste tire hauler registration requirements under certain conditions, which include:

- Persons hauling fewer than 10 waste or used tires;
- Persons hauling using a government vehicle or persons employed by either local, state, or federal government and who are not hauling tires for hire;
- Persons hauling waste or used tires through the state without loading or unloading tires;
- Persons hauling waste or used tires for agricultural purposes, as defined in statute;
- Common carriers hauling waste or used tires on a back-haul;
- Haulers inadvertently carrying waste or used tires that are commingled with solid waste but that are not economically feasible or safe to remove;
- Persons who receive an exemption letter from the local enforcement agency (LEA) for a single haul to the landfills or permitted destination site.

Although the manifest system implemented in 2003 provided useful information on waste tire flow (including import and export data) and proved useful as an enforcement tool to investigate potential violators, the full promise of a system to track waste tires from "cradle to grave" was not fully realized. The main problem encountered with this new manifest system was the voluminous amount of paperwork that was required, which prompted numerous complaints from the regulated community and strained CalRecycle's ability to compile and integrate the information.

Therefore, in 2004-2005, CalRecycle conducted workshops to gather input from stakeholders on how best to improve the system. Working closely with stakeholders, CalRecycle streamlined and simplified the original process for complying with the manifest program requirements. Staff developed a revised Comprehensive Trip Log form, which was adopted in February 2005. Utilizing this form, the tire hauler submits manifest information on behalf of all parties in the tire transaction, significantly reducing paperwork. During the first year of implementation, the total volume of paperwork was reduced by 71 percent by using this new trip log form; in 2011, this percentage decreased to 68 percent; However, this slight increase of 3% can be attributed to the increase of registered tire haulers since 2006. The revised form contains the same information as the previous manifest and trip log forms; however, it condenses this information onto a single form for reporting purposes.

The tire haulers also have other non-paper based alternatives for reporting manifest information. Haulers are now able to transmit tire manifest information electronically through CalRecycle's electronic data transfer process using both batch mode and web-based data entry capabilities. The expansion of electronic data transfers in 2006 resulted in additional program efficiency and cost effectiveness as 46 percent of all manifest records were submitted electronically; in 2011, that percentage decreased by 3 percent to 43 percent. Although there was a slight decrease in electronic data submissions, the number of haulers utilizing this mode increased to 30; three are using the batch mode and 27 are using the web-based mode. As an additional program improvement, in 2007 CalRecycle approved implementation of a Portable Hand-Held Device Pilot Program to evaluate the feasibility of transmitting manifesting information via electronic data transmission from field personnel. Although, this pilot program was not pursued past a Feasibility Study due to other program priorities, CalRecycle staff have worked with two large tire haulers who have shown an interest in this project. Although CalRecycle is not funding this type of project at this time, it fully endorses this concept for a more consistent and accurate reporting process. Currently, one large tire hauler has fully implemented this hand held device and another large tire hauler is still researching the feasibility of this device.

Improvements in the efficiency and reliability of the manifest program have greatly contributed to and supported our enhanced enforcement efforts as required by Strategic Directive 8.3. Indeed, in 2008, the number of prosecutions of hauler manifest and registration violations, and the demands on Legal and Program staff required a more expeditious method for processing these violations. To this end, a six-month Streamlined Enforcement Pilot Program was presented to, and approved by the Board (now CalRecycle) in April 2008 and fully implemented in July 2008. The Streamlined Enforcement Process, modeled on similar protocols utilized by other state agencies, consists of a penalty letter sent to the violator informing them of the violations and giving two payment options: 1) pay a reduced penalty amount based upon pre-approved criteria and not challenge CalRecycle allegations, or 2) contest the findings of CalRecycle and have the case presented before an Administrative Law Judge where significantly higher penalties will be requested.

If the violator decides to accept the reduced penalties, a Stipulated Decision and Order informing the violator of the allegations, the penalty amount, and their waiver of rights to an administrative hearing is signed by the responsible party and then sent back to CalRecycle with payment, and the decision is final.

The Streamlined Penalty Letter process has been an overwhelming success in reducing enforcement related costs and improving compliance and was approved as a permanent enforcement tool in 2009. To date, 353 penalty letters have been issued, of which 335 (95 percent) have been signed and returned with the Stipulated Decision and Order and payments. CalRecycle staff will be seeking regulatory approval to expand this process for facility violators as well in 2013.

Direction Provided by SB 876

SB 876 legislation mandated changes to the hauler and manifest program. In particular, it provides for a reform to the manifest system and the development of a new manifest form. SB 876 mandated the following:

1. "Close the loop" on accountability by requiring that copies of each manifest are returned to CalRecycle for monitoring.
2. Increase from four to nine the maximum number of waste and used tires that can be transported without having to obtain a waste tire hauler permit.
3. Provide for "one-time hauls" to support amnesty days and individual cleanup of small tire piles.
4. Enhance the manifest system and make the manifest available in electronic format, which would make it possible to submit information to CalRecycle electronically.
5. Change the placement of the decal from the driver's side door to the lower right-hand corner of the windshield.
6. Increases the penalties levied for violations of the PRC pertaining to waste and used tire hauling from $5,000 to $25,000.

PRC section 42961.5 requires all parties—waste tire generators, haulers, and end-use facilities—to participate in the "California Uniform Waste and Used Tire Manifest System." The tire hauler will complete the Comprehensive Trip Log receipt for every pick-up or delivery of waste or used tires. These receipts will be reviewed and signed off by the facility operator and a copy of the receipt will be left at that place of business to retain for a period of three years. The hauler will send a copy of the completed form to CalRecycle and also retain a copy for three years as well.

Objectives

The Hauler and Manifest Program has the following objectives:

1. To complement and support CalRecycle's waste tire enforcement program by providing comprehensive and auditable data on waste tire transactions between generators, haulers, and end-use facilities, thereby reinforcing compliance with waste tire statute and regulation and reducing the incidence of illegal waste tire disposal.

2. To provide some information on tire movements within the state and across borders to help support tire diversion and market development activities.

Performance Measures

The sixth edition of the Five-Year Plan contained five performance measures for the Hauler and Manifest Element, which are listed along with the attendant accomplishments for the previous fiscal year in

Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan. The Hauler and Manifest Program will use the following measures to evaluate success in achieving its objectives:

1. Reduce the number of registered waste tire haulers that do not submit manifests by 50 percent by December 2013.

2. Reduce the percentage of manifest form errors that are submitted by waste tire haulers by 45 percent by December 2013.

3. Track the percentage of waste tire enforcement program cases where the manifest system information has been used to assist CalRecycle staff and local enforcement agencies and report annually.
    a. Track the number of "204 Form" entries where the end-use facility operators are required to report unregistered waste tire haulers transporting tires to their facilities as well as complaint forms received.

4. Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually.

5. Determine the quantity of waste or used tires being picked up or delivered for each county by December 2013.

Activity Description and Budget

The Hauler and Manifest Program is a general line item budget as shown in Table 3 Budget for the Waste and Used Tire Hauler Program and Manifest System. The costs associated with this budget are printing and mailing of the Comprehensive Trip Log forms; training and educational materials; contracting with an outside source for data entry of the trip log forms; an Information Management Branch annual budget for manifest and hauler registration-related upkeep and maintenance of the Waste Tire Management System. Additionally, funds provide printing of the waste tire hauler decals and certificates as well as Tire Program Identification Number certificates.

Table 3: Budget for the Waste and Used Tire Hauler Program and Manifest System

Program Area	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Hauler Program and Manifest System	$450,000	$450,000	$450,000	$450,000	$450,000
Totals	**$450,000**	**$450,000**	**$450,000**	**$450,000**	**$450,000**

1. **Hauler Program and Manifest System:** With Board (now CalRecycle) approval of the trip log form, the overall costs for the manifest program have been reduced as less printing, postage, and processing time is necessary. The numbers presented in Table 3 for "Hauler Program and Manifesting" adequately reflects this revision.

    Activity Funding
    FYs 2013/2014–2017/18……$450,000 per fiscal year

Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State

Cleanup Program Background and Status

The Cleanup Program consists of the following activities:

1. Short-Term Remediation Projects Program;
2. Local Government Waste Tire Cleanup Grant Program;
3. Local Government Waste Tire Amnesty Grant Program;
4. Emergency Reserve Account; and
5. Farm and Ranch Solid Waste Cleanup and Abatement Grant Program.

As indicated in Table 4, since 1995 the Board (now CalRecycle) has, through both short- and long-term remediation on illegal waste tire sites, removed more than 659,000 tons of illegal waste tires and contaminated debris from 76 sites at a total cost of over $42 million. While the number of sites remediated each year has generally decreased since 1999, the cleanup costs have varied significantly depending on the number of large and/or complex projects undertaken in any given year.

Table 4: Tire remediation data for short- and long-term remediations.

Year	Number of Sites	Tons of Tires Remediated	Remediation Cost
1995	6	21,544	$870,832
1996	6	4,114	$389,487
1997	9	28,329	$1,367,760
1998	8	43,565	$2,515,592
1999	15	11,867	$1,442,688
2000	6	46,029 [1]	$3,340,505
2001	1	36,209 [1]	$2,162,000
2002	2	214,417 [1]	$11,624,345
2003	1	27,707 [1]	$1,849,943
2004	1	148,833 [1]	$9,836,885
2005	10	72,941 [1]	$4,300,000
2006	2	1,285	$506,405
2007	0	0	$0
2008	2	881	$235,011
2009	5	1,628 [1]	$1,536,161
2010	0	0	0
2011	1	443	$177,700
2012	1	5	TBD
Totals	**76**	**659,797**	**$42,155,314**

[1] *These totals include tons of contaminated debris removed.*

The purpose of the Local Government Waste Tire Cleanup (TCU) Grant Program is to facilitate the removal, transport, and reuse/recycling/disposal of waste tires from illegal tire piles and areas where illegal dumping has occurred along public rights-of-way. This is done by providing grants to local governments and American Indian reservations and rancherias. Table 5 summarizes the TCU Grant Program, which has increased steadily since 1998/99.

Table 5: Local Government Waste Tire Cleanup Grant Program

Fiscal Year	Number of Sites	Amount Awarded
1997/98	8	$171,286
1998/99	4	$51,768
1999/00	6	$213,126
2000/01	0	*
2001/02	8	$449,889
2002/03	11	$646,260
2003/04	14	$712,286
2004/05	16	$735,511
2005/06	20	$778,044
2006/07	20	$845,867
2007/08	**	$790,923
2008/09	**	$834,943
2009/10	19	$1,027,855
2010/11	21	$1,081,559
2011/12	0	***
Totals	147	**$8,339,317**

** No funds available—sunset of tire fee. ** Previously the program had provided grants for cleanup of specific sites. The program currently awards grant funds to clean up areas where illegal dumping has occurred along public rights-of-way. ***Grant program was suspended in order to transition to a two-year term.*

Since 1992, CalRecycle has provided more than $10 million to the Local Government Waste Tire Amnesty (TA) Grant Program, awarding 382 grants to eligible local governments to recover waste tires from the general public. With these grants, local governments develop public education materials on proper maintenance and disposal of automobile tires and hold amnesty events where the public can drop off waste tires for free. Table 6 summarizes the TA Grant Program.

Table 6: Local Government Waste Tire Amnesty Grant Program

Fiscal Year	Number of Grants	Amount Awarded
1992/93	4	$59,100
1993/94	8	$177,720
1994/95	13	$387,989
1995/96	1	$12,744
1998/99	16	$176,543
1999/00	26	$374,043
2000/01	0	*
2001/02	22	$330,817
2002/03	11	$321,247
2003/04	29	$924,674**
2004/05	17	$704,793
2005/06	31	$808,879
2006/07	33	$807,416
2007/08	43	$1,198,594
2008/09	39	$1,240,311
2009/10	42	$1,307,052
2010/11	47	$1,368,441
2011/12	0	***
Totals	**382**	**$10,200,363**

** No funds available—sunset of tire fee. ** The number of applicants increased because no matching funds were required. ***Grant program was suspended in order to transition to a two-year term.*

Direction Provided by SB 876

PRC section 42889(b) provides that:

"These moneys shall be expended for. . . the following purposes:

(5) To pay the costs of cleanup, abatement, removal, or other remedial action related to tire stockpiles throughout the state, including all approved costs incurred by other public agencies involved in these activities by contract with the board. Not less than six million five hundred thousand dollars ($6,500,000) shall be expended by the board during each of the following fiscal years for this purpose: 2001-02 to 2006-07, inclusive.

(9) To pay the costs to create and maintain an emergency reserve, which shall not exceed one million dollars ($1,000,000).

(10) To pay the costs of cleanup, abatement, or other remedial action related to the disposal of waste tires in implementing and operating the Farm and Ranch Solid Waste

Cleanup and Abatement Grant Program established pursuant to Chapter 2.5 (commencing with Section 48100) of Part 7."

Objectives

The Cleanup Program has the following objectives:

1. Eliminate illegal waste tire stockpiles throughout California, either directly or through grant assistance, where the responsible parties have failed to take appropriate action.
2. Decrease illegal waste tire dumping by assisting local governments through grant funds in developing public education materials on proper maintenance and disposal of automobile tires and promoting waste tire amnesty events for the general public.
3. Assist victims of illegal dumping on farm and ranch properties in cleaning up waste tires.
4. Direct tires from cleanup to productive end use rather than landfill disposal to the greatest extent possible within reasonable cost parameters.

Performance Measures

The sixth edition of the Five-Year Plan contained four performance measures for the Cleanup Element; these are listed along with the attendant accomplishments for the previous fiscal year in Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan:

1. Complete the short-term waste tire remediation projects referred by the Enforcement Program in a timely manner and report status of projects to CalRecycle on an annual basis.
2. Increase the number of sites remediated through Farm and Ranch Cleanup grants issued to local governments by 10 percent annually through 2014.

Activity Description and Budget

The cleanup program will continue to remediate sites with CalRecycle-managed contractors and grants to local governments for amnesty events and cleanup of illegal piles. In addition, CalRecycle will provide funding to the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program to further mitigate future accumulations of waste tires. Also, CalRecycle will establish an emergency reserve account, which cannot exceed $1 million, as directed by SB 876. Table 7 provides a list of activities and associated budgets for the element titled "Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles throughout the State."

Table 7: Budget for Cleanup, Abatement, and Remedial Action

Program Area	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Short-Term Remediation Projects	$300,000	$300,000	$300,000	$300,000	$300,000
Local Government Waste Tire Cleanup Grant Program	$0	$1,800,000	$0	$1,800,000	$0
Local Government Waste Tire Amnesty Grant Program	$1,800,000	$0	$1,800,000	$0	$1,800,000
Emergency Reserve Account	$500,000	$500,000	$500,000	$500,000	$500,000
Farm and Ranch Solid Waste Cleanup and Abatement Grant Program*	$0	$400,000	$400,000	$400,000	$400,000
Totals	**$2,600,000**	**$3,000,000**	**$3,000,000**	**$3,000,000**	**$3,000,000**

** Funds transferred to Farm and Ranch Solid Waste Cleanup and Abatement Grant Program.*

1. **Short-Term Remediation Projects:** PRC section 42846 allows CalRecycle to perform any cleanup, abatement, or remedial work required to prevent substantial pollution, nuisance, or injury to the public's health and safety at waste tire sites where the responsible parties have failed to take appropriate action. These efforts may include stabilizing piles until removal, removing all waste tires, and/or remediating the site after the tires have been removed. CalRecycle funds short-term remediation of illegal waste tire sites with CalRecycle-managed contracts. Funds allocated to remediation efforts may roll over from one fiscal year to the next. CalRecycle staff will continue to move aggressively to remediate the sites on the short-term projects list as they become known through enforcement actions or by other means.

   Activity Funding
   FYs 2013/14–2017/18.....$300,000 per fiscal year

2. **Local Government Waste Tire Cleanup Grant Program:** Under this grant program, local governments including cities, counties, special districts, other political subdivisions and jurisdictions joined together by formal agreements, as well as Qualifying California Indian tribes are eligible for funding. Grants are awarded to pay for the cost of cleanup, abatement, or other remedial actions related to the illegal disposal of California waste tires. Sites addressed under the program typically include small nuisance piles (i.e., less than 500 tires) of illegally dumped tires on public property widely distributed throughout the applicant's jurisdiction, and tires illegally disposed on public rights of way. These small dispersed sites are not large enough or cost-effective to address using CalRecycle's statewide short-term remediation program.

   Activity Funding
   FYs 2014/15 and 2016/17.....$1,800,000 per fiscal year

3. **Local Government Waste Tire Amnesty Grant Program:** This grant program is designed to help divert waste tires from landfill disposal and prevent illegal tire dumping. California cities, counties, special districts, other political subdivisions and jurisdictions joined together by formal agreements, as well as Qualifying California Indian tribes, are eligible to apply for these competitive grants. A waste tire amnesty event allows private citizens to take waste tires, in non-commercial quantities, to a specific location established by the local government administering the grant program. Based on FY 2009/10 application data, waste tire amnesty events are a cost-effective alternative for local governments when compared to the cleanup of illegally dumped tires. Per tire costs average $3.21 for amnesty events, while average cleanup costs under the TCU Grant Program run in the neighborhood of $5.31 per tire.

   Activity Funding
   FYs 2013/14, 2015/16 and 2017/18.....$1,800,000 per fiscal year

4. **Emergency Reserve Account:** SB 876 required CalRecycle to create and maintain an emergency reserve account which shall not exceed $1 million. Funding for FYs 2013/14–2017/18 is proposed at $500,000. These funds will be used to respond to emergencies involving waste tires (e.g., tire fires). This emergency reserve account is subject to change depending on the need to fund cleanups for any emergencies that arise. While CalRecycle is required to maintain funds in this account with expenditure authority for emergency purposes, more than $1,000,000 may be expended on a yearly basis. If allocated funds are not expended, funds may be carried forward to the fund balance in the following fiscal year.

   Activity Funding
   FYs 2013/14–2017/18.....$500,000 per fiscal year

5. **Farm and Ranch Solid Waste Cleanup and Abatement Grant Program:** Tire funds are transferred to the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program to remediate solid waste that has been illegally dumped on farm or ranch properties. SB 876 requires that transferred tire funds be allocated to pay the costs of cleanup, abatement, or other remedial action related to the illegal disposal of whole waste tires on farm or ranch properties. Other non-tire cleanup costs are paid for using other program funding sources. This program cleans up sites that in the past have acted like a magnet for white goods, used oil, other trash, and waste tires. Cleaning these sites up will help deter future illegal dumping of old tires; therefore, annual funding is proposed to continue at $400,000 for this program during FYs 2014/15-2017/18.

   Activity Funding
   FYs 2014/15–2017/18.....$400,000 per fiscal year

Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires

Research Program Background and Status

Over the years, CalRecycle has investigated a variety of waste tire diversion alternatives through internally generated research contracts and literature searches of research throughout the world. These research efforts have assisted CalRecycle in focusing on a rich mixture of strategies designed to divert the majority of waste tires from landfills. To date, projects involving rubberized asphalt concrete, civil engineering uses, energy recovery, molded rubber products, and other tire-derived product applications have been explored. So far, rubberized asphalt concrete and civil engineering uses have shown the greatest promise for diverting a significant portion of the 5 million tires currently being landfilled. However, those two applications cannot by themselves divert the remaining 5 million tires still being landfilled. Therefore, CalRecycle continues to refine its knowledge of existing uses and products, but will also investigate and research new and innovative applications. For example, CalRecycle has promoted the use of tire-derived aggregate in various civil engineering applications including several highway projects with Caltrans in which shredded tires were used as lightweight fill. The first project was completed in August 2001. The most recent in 2009 involved the realigning U.S. 101 at Confusion Hill in Mendocino County and used 270,000 tires. Prompted by the success of these projects, Caltrans has accepted tire-derived aggregate as a viable lightweight construction material.

CalRecycle, in coordination with Caltrans, also developed conceptual designs and conducted field tests to validate a new retaining wall design which will use tire-derived aggregate as backfill and take advantage of the reduced lateral pressure on the walls, resulting in less concrete and steel in its designs. In 2012, a Type 1 test wall was constructed with a TDA backfill and was subjected to earthquake forces at University at California San Diego Seismic test facility in San Diego. The retaining wall and TDA backfill was monitored during the seismic tests to determine the performance as compared to a retaining wall with a soil backfill. The preliminary results appear favorable, but Caltrans still has to finish analyzing the data and then work on incorporating this into the final design of the new Type 1-T retaining wall. While Caltrans is an important player in these efforts, CalRecycle has also partnered with local governments to construct TDA projects. CalRecycle has partnered with Mendocino, Sonoma, and Santa Barbara counties to complete four projects in which TDA was used as lightweight fill to repair landslides on highways. The Sonoma Mountain and Palomino Road projects were completed in 2010 and used 270,000 and 22,200 tires, respectively.

In another civil engineering application, CalRecycle partnered with the Valley Transportation Authority in San Jose to investigate the use of the tire aggregate as a vibration-damping material in its light-rail system. The results of this investigation were very favorable, so in 2004 the transit agency used 100,000 tires as aggregate in 2,000 feet of light-rail section along its Vasona Line expansion. This resulted in significant cost savings because conventional technology for vibration mitigation costs $500 per foot; the aggregate costs only $150 per foot. The Bay Area Rapid Transit Authority is working with CalRecycle to use tire-derived aggregate as a vibration mitigation measure in one of its future expansion projects.

Another area in which CalRecycle will be doing further research is civil engineering applications for use at landfills. CalRecycle previously funded a landfill gas collection project in Riverside County utilizing

tire-derived aggregate as a substitute for gravel in the gas collection lines. A similar project was also completed at the Kiefer Landfill in Sacramento County during summer 2009. In this project, which used about 60,000 tires, the gas collection line serves a dual purpose for leachate injection. Since completion of these projects, both facilities have used tire-derived aggregate in the expansion of their gas collection systems. Staff will continue to promote the use of tire-derived aggregate in landfills by providing assistance that will demonstrate its performance in various landfill applications.

A new area CalRecycle has researched is the use of TDA as a gravel replacement in on-site wastewater treatment (OSWT) systems. CalRecycle contracted with Humboldt State University (HSU) and constructed a field demonstration project which included two trenches, one filled with conventional gravel and the other TDA. The system operated for about one and a half years and waste water samples were collected. Preliminary results indicate that the TDA performed at least as well as the gravel. HSU also completed laboratory tests on TDA samples to determine engineering properties. This was done using large-scale testing equipment designed and built for the analysis. The final report is scheduled to be completed in the spring of 2013. CalRecycle anticipates using the results of this study to promote the use of TDA as an alternative to gravel in OSWT systems.

CalRecycle has a long history of supporting the development and use of rubberized pavements. This includes a contract with California State University, Chico Research Foundation (CSUCRF) to evaluate warm mix asphalt, and to complete a life cycle cost analysis, which validated that asphalt rubber continues to be a cost effective alternative to conventional asphalt paving. Recently CSUCRF completed a study for CalRecycle of terminal blend rubberized asphalts to gain additional data supporting the performance of the material as compared to conventional asphalt paving. The Chico researchers also completed a study of warm mix asphalt, which allows asphalt mixes to be batched at lower process temperatures. The study acquired data and evaluated the performance of warm mix materials as used in existing projects, developed the knowledge base for warm mix use, and investigated the technology and its feasibility for use with rubberized asphalt concrete. Currently, the CSUCRF is working on a rubberized asphalt concrete performance model that will assist in determining pavement preservation strategies which should result in cost savings.

Staff will continue to conduct research on the performance of tire-derived aggregate and rubberized asphalt concrete as engineering materials to assist in the development of technical standards for civil engineering and roadway applications. This research will require actual monitoring of pilot and field studies to demonstrate and promote civil engineering and roadway applications of waste tires.

Direction Provided by SB 876

SB 876 includes legislative intent language as follows (from 2000 uncodified law, SB 876):

> *"(g) The purpose of this act is to do all of the following:. . .(2) Encourage tire manufacturers to promote the use of retreaded and longer-lasting tires, as well as develop recycled-content rubber tires."*

PRC section 42889(b):
"The remaining moneys collected pursuant to Section 52885 shall be used to fund the waste tire program, and shall be appropriated to the board in the annual Budget Act . . . [and] shall be expended…for the following purposes:

6) To make studies and conduct research directed at promoting and developing alternatives to the landfill disposal of waste tires."

Objectives

The research program has the following objectives:

1. Conduct research and establish programs that support and promote new technology, new uses for waste tires, and improvements to products that use California-generated waste tires.
2. Identify research gaps in existing data and determine what areas need further investigation.

Performance Measures

The sixth edition of the Five-Year Plan contained one performance measure for the Research Element, which is listed in Appendix A along with related accomplishments for the previous fiscal year. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

The research program will use the following measures to evaluate success in achieving its objectives:

1. Identify critical research gaps, such as issues related to health exposure, environmental impacts, market barriers, etc.; complete research projects to address these issues and incorporate research findings in education, marketing, and outreach materials.

Activity Description and Budget

The research program will concentrate on activities that support increased use of rubberized asphalt concrete (RAC), tire-derived aggregate (TDA), and other tire-derived products (TDPs). This research will be conducted in three general areas: civil engineering applications using TDA, highway construction applications using rubber paving technologies, and non-highway technologies using waste tires. Table 8 provides the budget for the element titled "Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires."

Table 8: Budget for Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires

Program Area	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Research on Applications and Technologies for Waste Tires	$1,000,000	$500,000	$500,000	$500,000	$500,000
Totals	**$1,000,000**	**$500,000**	**$500,000**	**$500,000**	**$500,000**

1. Research on Applications and Technologies for Waste Tires: This activity will fund projects in the following categories:

- ***Civil Engineering Applications using Tire-Derived Aggregate:*** CalRecycle has made significant progress promoting the use of TDA in civil engineering applications; in fact, CalRecycle has successfully partnered with both state and local governments to complete projects that have demonstrated the performance and cost effectiveness of TDA. These partnerships helped create

advocates who are committed to using TDA in future projects and who will also help promote CalRecycle's marketing efforts by getting others to use it. Although CalRecycle considers TDA one of the top priority marketing targets for diverting waste tires from landfills, there is still much work that needs to be done to establish this use of waste tires as an accepted material. Under this activity, CalRecycle will continue to investigate new civil engineering uses for waste tires, including partnering with state, local, and private-sector engineers to conduct research and educate them on the use of TDA in these projects. For research projects focusing on specific civil engineering uses of waste tires, project-specific contracts may be implemented. These projects could include, but are not limited to, erosion control, earthquake damping, vibration mitigation, retaining and sound walls, storm water runoff/drainage control, and septic tank leach field applications.

- ***Highway Construction Applications Using Rubber Paving Technologies:*** CalRecycle continues to make significant progress in promoting RAC and as a result, its use continues to increase statewide. Research of rubber paving applications has played a key role in CalRecycle's outreach efforts. For example, CalRecycle has recently completed a life-cycle cost study that reaffirmed that rubberized asphalt paving is a cost-effective alternative to conventional paving. In addition, CalRecycle is investigating the viability of integrating recycled rubber pavement into new pavement.

  As this technology continues to evolve, there are several new applications that CalRecycle will continue to study to gain additional information regarding their benefits and drawbacks. Some of these applications may include new developments in: rubberized hot mix, and rubberized chip and slurry seals. Under this program element, CalRecycle will research and if necessary conduct pilot studies for these applications in order to evaluate their performance and cost benefits.

  If the ongoing research supports the benefits of these applications, CalRecycle then can market and promote the use of these applications by including them in future grant offerings, with the aim of enhancing sustainable markets for additional waste tires. Additionally, CalRecycle staff will evaluate current design standards and investigate pavement preservation strategies that use rubber and increase the lifespan and performance benefits (e.g., resistance to reflective cracking, skid resistance, noise reduction) of pavements. However, improvements in mix design and range of use are continuously evolving and may warrant further investigation.

- ***Research on Non-Highway Technologies Using Waste Tires:*** CalRecycle will continue to investigate non-highway related technologies that utilize waste tires to study and determine whether they are viable in the current tire market and if there are health and safety impacts that could adversely impact their use. Some of these applications may include: identification of human health and environmental risks associated with TDPs; assessing feasibility of using crumb rubber in molded, extruded, and other products; assessing market opportunities for waste tire residual fluff; evaluating end-of-life options for various TDPs; partnering with universities, state agencies, and the U.S. Environmental Protection Agency to conduct research on new products and applications derived from waste tires; and conducting a study to compile tire-derived product performance and cost information.

Activity Funding
FY 2013/14……..$1,000,000
FYs 2014/15–2017/18…….....$500,000 per fiscal year

Market Development and New Technology Activities for Waste and Used Tires

Background and Status

CalRecycle continues to promote the development of long-term, sustainable markets for tire-derived products in California. The ultimate goal is to assure that the intrinsic value of waste tires as a commodity offsets the low cost of disposal for waste tires. Therefore, the continued objective for this revision of the *Five-Year Plan* is to develop solid markets for rubberized asphalt concrete, civil engineering applications, and other tire-derived products. A broad range of products will be required to make markets in California competitive and sustainable.

In the early years of implementing tire-related legislation, the Board (now CalRecycle) placed more emphasis on research and innovative product development. While research and pilot projects are still necessary to demonstrate the viability and marketability of various tire-derived product applications, at some point products must be accepted into the marketplace based on real-world cost-effective applications. And as these are more accepted, CalRecycle would expect to spend less on some uses/applications, for example, rubberized asphalt concrete users with more experience. Furthermore, once research is done on new products and usages and barriers are identified and eliminated (see Research Element), CalRecycle may consider developing programs to promote these products as they move through the product stages.

At this time, CalRecycle is continuing to focus its efforts on three fronts by: 1) promoting the development of long-term, sustainable and diversified markets for tire-derived products; 2) promoting the development of a long-term, sustainable supply infrastructure in California that efficiently and profitably produces high-quality raw material to meet market demand; and 3) fostering information flow, knowledge transfer, and technology and product development to increase tire-derived product demand and the supply that feeds it.

CalRecycle is addressing the first front through focused technical outreach and grant programs for rubberized asphalt concrete, tire-derived aggregate and tire-derived products. These are focused primarily on local government and state end-users of these products. Additionally, the new tire incentive program will target expansion of commercial (business) demand for higher value-added TDPs. The Tire-Derived Product Business Assistance Program was specifically designed to address the second front by helping businesses to streamline operations, reduce production costs, improve marketing efforts, and diversify product lines. The assistance program helped businesses improve their ability to operate on a sustainable basis and manufacture products without the need for ongoing long-term assistance. While these programs were designed to deal with the short- to medium-term financial and technical business needs necessary to establish sustainable markets, this targeted assistance will eventually be phased out. However, as new products and fledging industries emerge, CalRecycle can develop programs accordingly.

Further, CalRecycle will expand its education, training, and outreach opportunities on top priority market expansion opportunities and barriers to address the last front. Although there are differences in these three market development efforts mentioned above (i.e., technical assistance, outreach, and education activities), CalRecycle will coordinate them to make efficient use of available resources, create opportunities for long-term sustainable markets, and increase the number of waste tires diverted from landfills.

Through successful research and demonstration efforts that have been completed just in the last few years, staff now considers TDA a cost-effective and reliable alternative to lightweight fill materials. These types of projects indicate that great market potential exists for using large quantities of waste tires when replicated in other projects throughout California. As such, CalRecycle has progressively promoted its use for civil engineering applications by providing funds for the TDA Grant Program that started in 2012.

CalRecycle has partnered with the Valley Transportation Authority (VTA) in San Jose to investigate the use of the TDA as a vibration-damping material in VTA's light-rail system. At its own expense, VTA used 100,000 waste tires as TDA in 2,000 feet of light-rail section along its Vasona Line expansion in 2003 and 2004. The results were favorable and CalRecycle staff is working with other transit agencies to use TDA as a vibration-damping material in their future projects.

In addition, the Route 91 project in Southern California used 84,000 tires as lightweight fill material in a retaining wall project. CalRecycle and Caltrans are developing conceptual designs and conducting field tests to validate a new retaining wall design, which will take advantage of reduced backfill pressure by using less concrete and steel in its designs. The second phase of this retaining wall study was constructed in 2006. This test section used TDA made from 150,000 waste tires.

The success of these projects prompted Caltrans to issue a letter to its district directors stating that the use of tire shreds has proven to be an economically feasible alternative where conditions warrant the use of lightweight fill.

As a result, more projects have come forward, both at the state and local levels. In 2009 Caltrans completed the lightweight fill project located at Confusion Hill on U.S. 101 near Piercy in Mendocino County. The project used TDA for this rockslide/road repair project. The new route bypasses the rockslide area through the use of two new bridges. The north bridge embankment had an existing underground drainage structure which could not handle the additional load which would result from the added height of the north bridge embankment. To prevent possible damage to the subsurface structure, a lightweight fill material was needed. TDA was chosen as the fill material for the project because of its light weight and cost-effectiveness. The existing fill material over the structures was removed and replaced with the lightweight TDA material. The project used approximately 270,000 waste tires and was completed in 2009. In addition, CalRecycle has conducted two TDA slide repairs in Sonoma County and one in Santa Barbara County that between the three sites used over 800,000 waste tires.

Over the years the Board (now CalRecycle) has provided support to local agencies that use RAC and rubberized chip seal. Through its Rubberized Payment Grant Program, scores of new paving projects have been completed or are being planned in California. When compared to conventional asphalt, RAC saves money, provides greater skid resistance, is quieter, and lasts longer. CalRecycle has successfully promoted the product's benefits through workshops, conferences, the rubberized asphalt concrete technical centers, and other outreach efforts.

Focused technical outreach and education, along with grant programs, have increased the use of rubberized asphalt concrete by local governments considerably, and dozens of local governments are using it for paving projects. The City of Thousand Oaks has paved hundreds of lane miles with RAC, using more than 1 million waste tires. Sacramento, San Diego and Los Angeles counties are following suit. One of the primary focuses of CalRecycle's outreach campaigns is to promote environmentally preferable products for the state, including RAC where it has not been used. As the number of "first-time" users diminishes, the emphasis will shift to encouraging local jurisdictions to expand their existing use of the asphalt-alternative products. CalRecycle continues to promote several other transportation-based products, such as terminal blend asphalt rubber, warm mix, rubber chip seals, and rubberized slurry seals.

While other tire-derived products do not consume large numbers of waste tires, it is important to have a rich variety of outlets for crumb rubber to assure a long-term sustainable market. Furthermore, many of these products have benefits over conventional alternatives. For instance, rubberized sidewalks help keep tree roots from destroying the sidewalks, and these more resilient sidewalks are easier on joggers' and walkers' joints. Weed abatement mats can save money for state agencies and local governments by reducing the need for herbicides and maintenance staff. Other transportation-related products can effectively replace existing products like top-hats and road cones. To help stimulate these markets, CalRecycle has provided funding through tire-derived product grants which considers the number of waste tires used per project, costs per tire, and feasibility to determine funding opportunities. To further stimulate the market, CalRecycle proposes to introduce a pilot tire incentive program. The program will target expansion of commercial (business) demand for higher value-added TDPs. The program would enable participating manufacturers to increase TDP sales by more competitively pricing and marketing their products. This program is still in the developmental stages and will be vetted with stakeholder before finalizing.

A California Tire Market Report is published each year that provides information on the waste tire diversion rate, market trends and supply/demand balance. These reports can be found in CalRecycle's Publications Catalog at: http://www.calrecycle.ca.gov/Publications/default.asp?cat=16

Direction Provided by SB 876

PRC section 42889(b):

> *"The remaining moneys collected pursuant to Section 42885 shall be used to fund the waste tire program, and shall be appropriated to the board in the annual Budget Act . . . [and] shall be expended…for the following purposes:*
>
> *8. . . ¶*
>
> *(7) To assist in developing markets and new technologies for used tires and waste tires. The board's expenditure of funds for purposes of this subdivision shall reflect the priorities for waste management practices specified in subdivision (a) of PRC Section 40051."*

Performance Measures and Objectives

The Sixth Edition of the Five-Year Plan contained nine performance measures for the Market Element, which are listed along with related accomplishments for the previous fiscal year in Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

The market development program will use the following measures to evaluate success in achieving its objectives:

1. Increase the percentage of waste tires diverted from landfill disposal to 90 percent by 2015.

2. Increase the amount (tons) of waste tires used in priority market segments, including rubberized asphalt concrete, molded and extruded products, civil engineering (transportation), etc.

3. Increase the number of state agencies that are contacted regarding procurement of priority products/uses and those that subsequently purchase such products or employ such uses.

4. Increase the purchase of tire-derived products by local jurisdictions (measured in tons and broken out by rubberized asphalt concrete, tire-derived aggregate, and other tire-derived products).

5. Reduce the number of waste tires generated in California from 1.1 to .9 per person per year by 2015.

6. Reduce the annual average of dollars awarded per Passenger Tire Equivalent (PTE) diverted within individual grant programs Rubberized Pavement (TRP) Grant Program, Tire-Derived Product (TDP) Grant Program and Tire-Derived Aggregate (TDA) Grant program over a five-year period (2011-2016).

7. Increase regional capacity to produce chipped and shredded tire-derived aggregate for civil engineering projects.

8. Increase in-state production and use of finer ground rubber (up to 60 mesh) for production of molded and extruded products.

Activity Description and Budget

The Market Development Program is focusing on RAC, TDA and TDPs that use the largest number of tires. Since the largest number of tires can be diverted through RAC and TDA applications, significantly more resources are being devoted to them. To assure that TDP businesses can meet the demand, the business assistance program will work closely with the industry to expand existing businesses and attract new ones. Table 9 provides the budget for this element.

Table 9: Budget for Market Development and New Technology Activities for Waste and Used Tires

Program Area	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Tire-Derived Aggregate Civil Engineering Technical Support	$1,000,000	$500,000	$0*	$500,000	$500,000
Tire-Derived Aggregate Grant Program	$1,700,000	$1,600,000	$1,600,000	$1,600,000	$1,600,000
Tire-Derived Aggregate Technology Center and Laboratory Testing Services	$100,000	$100,000	$100,000	$100,000	$100,000
Rubberized Asphalt Concrete Technical Assistance Contract	$0*	$500,000	$1,000,000	$500,000	$500,000
Rubberized Pavement Grant Program	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
Tire-Derived Products Grant Program and Tire Incentive Grant Program	$3,273,747	$4,123,747	$4,123,747	$4,123,747	$4,123,747

Program Area	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Tire Outreach and Market Analysis	$500,000	$500,000	$500,000	$500,000	$500,000
Tire Events	$75,000	$75,000	$75,000	$75,000	$75,000
Totals	**$9,648,747**	**$10,398,747**	**$10,398,747**	**$10,398,747**	**$10,398,747**

*Fiscal years are zero due to contracts running for a three years cycle.

1. **Tire-Derived Aggregate Civil Engineering Technical Support:** Technical support is an important component of the success of the RAC grant program and CalRecycle will provide similar technical support and education to grantees as a component of the TDA Grant Program, using a new technical assistance contract component. This technical support may address issues associated with the use of TDA in civil engineering projects. Typical projects may include applications such as lightweight fill, landfill applications, and vibration damping layers in light-rail projects.

   The technical assistance contract component will also promote the use of TDA through a technical marketing and education outreach plan. This will be accomplished by the technical assistance contractor through: video documentation and assisting the Office of Public Affairs in the coordination of media events of TDA demonstration projects. The technical assistance contractor will also develop technology transfer materials that showcase the performance and cost benefits of using TDA. The technical assistance contractor will present these materials and serve as a CalRecycle liaison at various key stakeholder group workshops and conferences.

   Activity Funding
   FY 2013/14……$1,000,000
   FYs 2014/15 and 2016/17-2017/18……..……$500,000 per fiscal year

2. **Tire-Derived Aggregate Grant Program:** The TDA Grant Program builds on the success of numerous TDA demonstration projects and the RAC Grant Program. The program provides funding to local governments, special districts, State agencies including offices, departments, bureaus, and boards, California-based private, for-profit entities, and Qualifying California Indian Tribes for civil engineering projects utilizing TDA. To be eligible for the grants, projects must use TDA in one of a variety of approved civil engineering applications.

   In the next two or three years, CalRecycle may also consider an incentive to facilitate efficient movement of TDA through the supply chain. Such an incentive may be targeted at the processor, purchaser or a combination of the two.

   Activity Funding
   FY 2013/14 ……. $1,700,000
   FYs 2014/15–2017/18……. $1,600,000 per fiscal year

3. **Tire-Derived Aggregate Technology Center and Laboratory Testing Services:** CalRecycle will continue its technical outreach efforts by continuing its contract with a contractor that has knowledge

and experience with using TDA and RAC in California. Through the TDA Technology Center, the contractor will provide statewide technical assistance to local governments through direct consultation and presentations at local and regional workshops. To assure compliance with material specifications, the contractor will also provide validation testing services in support of CalRecycle RAC and TDA projects.

Activity Funding
FYs 2013/14–2017/18……$100,000 per fiscal year

4. **Rubberized Asphalt Concrete Technical Assistance Contract*:*** The success of CalRecycle's RAC programs has been due in part to the technical support that has been provided through CalRecycle's RAC technical assistance contract. The contractor will continue to provide technical support and education to local government grantees and CalRecycle under a new technical assistance contract. This technical support may address issues associated with roadway projects, including rubber hot-mix, rubber chip seal, rubber cape seals, and other emerging paving applications that use tire-derived materials that have been determined by CalRecycle to have benefits derived from the use of scrap tires. The technical assistance contractor will also serve as the liaison at various stakeholder workshops and conferences that will help promote RAC programs.

   The contractor will also assist CalRecycle in developing and implementing a cooperative purchasing program to address obstacles to wider use of RAC by local agencies. For example, rural local government agencies typically have smaller paving budgets and are not located in close proximity to RAC facilities. Because these constraints would result in smaller projects and higher transportation costs, rural agencies are frequently unable to use the product. However, all local government agencies, regardless of the size for their paving budgets will benefit from the cost savings provided by a cooperative purchase project. Through this program, the contractor will coordinate the participating agency projects and provide design assistance, specification review, bidding/procurement, construction management, quality assurance, and quality control. In addition, the contractor will provide training to each participating agency so that they can carry out future cooperative purchase projects on their own.

   The technical assistance contractor will also assist CalRecycle with marketing and promoting the use of RAC. This will be accomplished through the development and distribution of technology transfer materials that showcase the benefits of using RAC. The technical assistance contactor will present these materials and serve as a liaison at various key stakeholder group workshops and conferences.

   Activity Funding
   FYs 2014/15 and 2016/17-2017/18……$500,000 per fiscal year
   FY 2015/16…..……..……..……$1,000,000

5. **Rubberized Pavement Grant Program:** This successful program will continue to be offered to cities, counties and Qualifying California Indian tribes that fund public works projects located in California. The program is designed to assist in creating long-term sustainable markets by focusing on first-time and limited experience users of rubberized paving.

Activity Funding
FYs 2013/14-2017/18……..……..…$3,000,000 per fiscal year

6. **Tire-Derived Products Grant Program and Tire Incentive Grant Program:** This expanded program, with both the traditional Tire-Derived Product (TDP) Grant Program and the new tire incentive program (TIP) components, is designed to increase demand for TDPs.

   Tire-Derived Product Grant Program: The TDP Grant Program, and its predecessors, has successfully increased demand for TDPs, especially with local governments and school districts. It has also encouraged the appropriate substitution of recycled rubber for virgin rubber (also known as "feedstock conversion"). Typical TDPs include: landscaping and playground loose-fill mulch, playground tiles, crumb rubber infill for all-weather sports surfacing, rubberized sidewalks and tree wells, floor and agricultural mats, sports tracks, etc.

   Tire Incentive Grant Program: To further expand demand, CalRecycle proposes to implement a pilot Tire Incentive Grant Program (TIP) starting in FY 2013/14. The incentive is aimed at expanding commercial (business) demand for higher value-added TDPs. Emphasis will be on products which have not necessarily benefited from the traditional TDP Grant Program and/or feedstock conversion. The participating manufacturers will be expected to pass on all or a portion of the incentive (as a price discount) to the end purchaser of the product. The incentive can also be used for a myriad of specific TDP production or selling expenses, such as: product development, testing and certification, marketing and selling costs.

   Examples of possible incentive eligible products will include, but not be limited to: flooring underlayment, rubberized flooring, conveyer belts, calendared or compounded rubber, agricultural harvesting devices, various landscaping and garden products, various building products, various traffic devices, spacers, fencing, asphalt roofing shingles, paintings, coatings, etc. Pour-in-place playgrounds which use shredded or chunk rubber from California-generated passenger (not truck) tires for the cushion course will be eligible.

   In addition to providing an incentive, up to 10% of the available funding might also be used for one or more contracts to increase awareness and marketing of TDPs. Contracts may include various aspects of marketing to targeted sectors, including, but not limited to: green building, construction, transportation, etc. An alternative will be for additional monies to be added to individual incentive grants to allow participating manufacturers to further increase TDP marketing.

   Specifics regarding TIP applicant eligibility, product eligibility, evaluation process, and awards amounts will be determined by CalRecycle, using input from stakeholders and other sources. CalRecycle is proposing that the pilot tire incentive program continue for five years. The program will be continuously evaluated for effectiveness and efficiency with CalRecycle making adjustments, as appropriate. Depending on results, CalRecycle may adjust annual funding between the two grant programs.

   Activity Funding
   FY 2013/14……..……..……..……...$3,273,747
   FYs 2014/15-2017/18……..……..……..$4,123,747 per fiscal year

7. **Tire Outreach and Market Analysis:** This program is intended to document market trends and conduct focused technical outreach to public and private procurement entities to increase demand and expand the use of waste tire-derived material in a variety of applications including higher value-added products.

   Staff and an independent contractor will provide:

   - An annual in-depth survey and analysis of the waste tire and TDP markets in California and the associated California Waste Tire Market Report. This effort consists of a market analysis study to assess the market for California waste tires and influencing factors in the market, including providing information on the waste tire diversion rate, market trends, supply/demand balance and capacity, and other relevant market analyses. The analysis will culminate with the annual publication of the California Waste Tire Market Report.
   - Focused technical outreach and education targeted at stakeholders, such as federal, state and local governments, school districts and private entities, that are in a position to procure TDPs and/or have the authority to specify them in future projects. The goal of this effort is to increase demand for tire-derived products, foster the application of new technologies, and expand the use of waste tire derived material into a variety of applications, including higher value-added products. This includes monitoring and measuring the outcome of these efforts; developing case studies; conducting meetings, trainings, and webinars to targeted stakeholders (including two CalRecycle tire conferences); and maintaining and updating outreach and education materials, and
   - Research and testing to address identified gaps in TDP product data and specifications that pose a barrier to TDP market expansion.

   Annually $350,000 will be spent on focused outreach, education and promotion, and $150,000 will be spent on the market analysis.

   Activity Funding
   FYs 2013/14-2017/18……..……..$500,000 per fiscal year

8. **Tire Events:** CalRecycle will continue to hold tire workshops, forums, and/or trainings, as it has in past years. These tire business/product events will provide attendees with up-to-date information about waste tire management programs. They provide a venue to discuss all aspects of waste tire management, including hauling, manifests, cleanup, proper disposal, recycling technologies, and research and market development activities. These events also offer a venue for staff and stakeholders to meet and focus on issues of common concern. Wherever possible, events will be conducted in conjunction with related events organized by organizations such as the League of California Cities, California Public Works Association, California State Association of Counties, etc. In addition, staff has combined the Tire, Used Oil/Household Hazardous Waste Annual Conference, and Recycling Market Development Zone Conferences and Training Workshops into one combined three-year contract to provide efficiencies of scale and other benefits. All events also will be coordinated with CalRecycle's Office of Public Affairs.

   Activity Funding
   FYs 2013/14-2017/18……..$75,000 per fiscal year

Administrative Costs

Program Staffing and Administration

Tire-related activities are performed by a total of 69.72 positions within CalRecycle. The total cost of staffing and administration is approximately $7.5 million.

Activity Funding

FYs 2013/2014–2017/18……..…$7,501,517 per fiscal year*

**Estimate of staffing and administrative costs*

Administration

"Administration" refers to the accounting of central management costs, such as those pertaining to executive management, accounting, human resources, grants, business services, employee health and safety, small-office support, and statewide pro rata assessments (pro rata is the sharing of general funded central service costs by funds other than the General Fund, as mentioned in the State Administrative Manual, Section 8753) that generally serve all of CalRecycle (i.e., indirect or overhead costs). This Administration funding represents the distribution of "indirect costs" to direct CalRecycle program activities that include the tire program.

Activity Funding

FYs 2013/2014–2017/18.....$1,924,244 per fiscal year*

**Estimate administrative costs*

Mandatory Contracts

"Mandatory Contracts" includes allocation for the following: Attorney General's Office, Board of Equalization, Department of Finance, Foundation of California Community Colleges, Governor's Office of Planning and Research, Office of Administrative Hearings, Professional Recovery Systems, and the University of California, Davis.

Activity Funding

FYs 2013/2014–2017/18.....$1,375,492 per fiscal year*

**Estimate of costs for mandatory contracts*

Appendix A: Accomplishments Based on Performance Measures from the July 2011 Five-Year Plan

This section contains performance measures from the Five-*Year Plan for the Waste Tire Recycling Management Program (Sixth Edition Covering Fiscal Years 2011/12-2015/16)*, dated July 2011, with accomplishments reported after each performance measure. Data collected is for fiscal year 2011/12 unless specified. Baseline data can be found in italics.

Enforcement Program

To evaluate the enforcement program's success in achieving its objectives, the following measures were proposed in the July 2011 *Five-Year Plan*:

1. **Inspections:**
    a. Inspect all active major and minor permitted facilities at least once every fiscal year.

       As of June 30, 2012, there were 39 active permitted facilities, and 38 (98 percent) of them had been inspected.

    b. Inspect all active registered haulers at least once every two fiscal years.

       As of June 30, 2012, there were 1,442 active haulers, and 1,070 (75 percent) of them had been inspected.

    c. Inspect all active generators at least once every three fiscal years.

       As of June 30, 2012, there were 20,458 active generators, and 17,857 (88 percent) of them had been inspected.

    d. Monitor the results of inspections by compiling comparative annual data of the number of inspections performed, Notices of Violations issued, and referrals made to the Board (now CalRecycle).

       From July 1, 2010 through June 30, 2012, 40,898 inspections were performed, 2,347 notices were issued, and 155 enforcement referrals were made to CalRecycle by grantees.

2. **Surveillance:**
    a. *Monitor* the effectiveness of surveillance activities by compiling comparative annual data of illegal tire piles identified via grantee or CHP surveillance.

       From July 1, 2010, through June 30, 2012, surveillance activities identified 4,165 illegal tire piles. (Illegal tire piles are defined as one or more illegally dumped tire.)

3. **Non-Compliant Tire Businesses:**
    a. Monitor the effectiveness of progressive enforcement actions by compiling comparative annual data of enforcement actions initiated and resolved.
    From July 1, 2010 through June 30, 2012, staff initiated 16 enforcement actions and 12 actions from this period and earlier were resolved. The unresolved items are under active enforcement orders.

4. **Grant Program:**
    a. Increase or maintain waste tire enforcement grantee coverage in the state to 80 percent or more of active tire businesses for each fiscal year.

    For 2010/11 awards (cycle 18), 87 percent of active California tire businesses are covered by grantees.

    b. Conduct at least two grantee roundtables per fiscal year.

    The Tire Enforcement Branch conducted grantee roundtable meetings in the fall of 2011 and the spring of 2012. Subjects included inspection and enforcement procedures, tire enforcement legal issues, and general grant management and administration.

    c. Participate in the Annual Tire Conference.

    The Tire Enforcement Branch participated in the 13th Annual Technical Training Series held in February 2011.

    d. Monitor the effectiveness of the grant program by compiling comparative annual data of grant funds awarded and expended.

    Grantees were awarded $15,303,740 for the 17th and 18th grant cycles for work performed July 1, 2010 through June 30, 2012. Grantees expended $6,126,860 (81 percent) of the cycle 17 awards and $5,712,148 (73 percent) of the cycle 18 awards.

Hauler and Manifest Program

The Hauler and Manifest Program will use the following measures to evaluate success in achieving its objectives:

1. **Reduce the number of registered waste tire haulers that do not submit manifests by 50 percent by December 2011**.

    Currently, CalRecycle registers more than 1,400 waste tire haulers. Approximately 214 of these tire haulers (15 percent) have failed to submit any Comprehensive Trip Log forms to CalRecycle since January 2009. This represents a 7 percent increase from previous findings. One logical explanation is that some new haulers have not yet hauled tires under their registration thus generating no CTLs; other concerns are that the veteran hauler may still be using an old Tire Program Identification (TPID) number that should no longer be used. Whatever the reasoning for this increase, staff will continue to make progress toward meeting this objective in the coming years.

2. **Reduce the percentage of manifest form errors that are submitted by waste tire haulers by 45 percent by December 2010.**

   A review of the paper manifest forms submitted to CalRecycle during the time period of January 2010 to November 2012 shows that the error rate is currently at 7 percent (44,249 of 671,645 manifest form receipts showed serious level 1 errors). "Serious Level 1" errors are defined as manifest form receipts that contain invalid or missing TPIDs, missing or multiple load types, invalid or missing load amounts, missing load date, and neither or both pick-up or delivery box checked. The 7 percent error rate represents a 46 percent reduction from the previous reported error rate of 13 percent and achieves the performance objective.

3. **Track the percentage of waste tire enforcement program cases where the manifest system information has been used to assist Board (now CalRecycle) staff and local enforcement agencies and report annually.**

   During the time period from October 2010 to November 2012, approximately 95 percent (154 out of 163) of the enforcement cases used manifest information to assist in the enforcement actions*. This data continues to demonstrate the importance of the manifest system in providing data to support the vast majority of CalRecycle's enforcement cases.

   a. **Track the number of "204 Form" entries where the end-use facility operators are required to report unregistered waste tire haulers transporting tires to their facilities**. During the time period from October 2010 to November 2012, approximately 1,210 complaints (204 Forms) were submitted to CalRecycle; of this number, 23 enforcement actions* were taken against repeat violators. Enforcement action on complaints is generally reserved for repeat offenders; the vast majority of complaints are resolved with letters of violations and/or staff counseling of offenders on the legal requirements for hauling of used and waste tires. It should also be noted that the number of complaints have been reduced during this time period; from an average of 59 complaints/month to 49 complaints/month, approximately an 8% reduction; possibly due to local Tire Enforcement Agency oversight and an increase in CalRecycle inspections.

   **Enforcement actions include Administrative Complaints and Streamline Penalty cases.*

4. **Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually.**

   During the time period of January 2004 to November 2012, 419 enforcement cases were resolved against tire haulers resulting in assessed penalties of $611,650 along with $369,850 held in abeyance pending satisfactory compliance with waste tire laws and regulations.

5. **Determine the quantity of waste or used tires being picked up or delivered for each county by December 2010.**

   During the time period from January 2010 to November 2012, a total of 205,601,856 waste or used tires were picked up and 228,172,747 waste or used tires were delivered within the state.

Chart 1: Pick-up and Deliveries of Waste/Used Tires within California

Year	Pick up in CA (PTEs)	Deliveries in CA (PTEs)
2010	70,510,379	80,352,726
2011	74,987,234	82,808,857
2012	60,104,243	65,011,164
TOTALS	205,601,856	228,172,747

Cleanup Program

To evaluate the cleanup program's success in achieving its objectives, the following measures were proposed in the July 2011 Five-Year Plan:

1. Complete the short-term waste tire remediation projects referred by the Enforcement Program in a timely manner and report status of projects to CalRecycle on an annual basis.

For Fiscal Year 2011/12 ten waste tire sites located on Infineon Raceway property were cleaned up at a total cost of $173,907. The combined sites contained approximately 60,000 waste tires. This project was completed under a cooperative cost sharing arrangement approved by the California Integrated Waste Management Board (now CalRecycle) in July 2003. The costs listed above account for CalRecycle's contractor and consultant costs, and do not reflect the design, permitting, and remediation work paid for directly by the Infineon Raceway. CalRecycle paid $7,338 for tribal monitoring. The remaining $166,569 in contractor costs for tire removal and disposal was shared equally by CalRecycle and the Infineon Raceway per the cost sharing arrangement.

2. Increase the number of sites remediated through the Local Government Waste Tire Cleanup Grant Program by 5 percent annually through 2012.

For FY 2010/11 a total of 21 grants were awarded, for FY 2011/12 the grant was suspended in order to transition to a two-year grant term, for FY 2012/13 a total of 23 grants were awarded. The number of grants awarded during the period increased at an average of 9%.

3. Increase the number of Local Government Waste Tire Amnesty grants issued to local governments by 5 percent annually through 2012.

For 2010/11 a total of 47 grants were awarded, for 2011/12 the grant was suspended in order to transition to a two-year grant term, for FY 2012/13 only the cleanup grant was offered. For evaluation purposes, FY 2009/10 data is used to determine if the objective was met. The number of grants awarded for amnesty increased from FY 2009/10 to FY 2010/11 at an average of 6%.

4. Increase the number of sites remediated through Farm and Ranch Cleanup Grant issued to local governments by 10 percent annually through 2012.

Twelve Farm and Ranch grants were awarded in fiscal year 2010/11, for $232,939 for the cleanup of 28 sites. In fiscal year 2011/12 eight applications were submitted, however three were ineligible

resulting in the award of only five grants for a total of $158,025. Due to the decline in awarded grants, these five grants will remediate only nine illegal disposal sites this fiscal year.

Research Program

To evaluate the research program's success in achieving its objectives, the following measures were proposed in the July 2011 Five-Year Plan:

The research program will use the following measures to evaluate success in achieving its objectives:

1. Identify critical research gaps, such as issues related to health exposure, environmental impacts, market barriers, etc.; complete research projects to address these issues and incorporate research findings in education, marketing, and outreach materials.

CalRecycle awarded research contracts to Caltrans and CSU Chico to investigate issues that pose technical challenges to civil engineering applications that they promote. Specifically, contracts were awarded to Caltrans to investigate the performance of a retaining wall with a TDA backfill during an earthquake and to also evaluate the performance of warm mix asphalt paving using the heavy vehicle simulator at the UC Davis pavement research center.

In addition, CalRecycle worked with the State Water Resources Control Board on the development of the onsite wastewater treatment (OWT) policy to assure that tire derived aggregate (TDA) was not precluded from being used as an alternative to gravel in OWT systems. Field and laboratory research projects were completed to further demonstrate the viability of using TDA in California OWT systems and to document that there are no negative environmental impacts. In testing several engineering properties of TDA in the laboratory large-scale test apparatuses were used. This allowed the contractor to obtain data that better simulated actual septic system applications. The final report has not been completed, but the preliminary results of the testing showed favorable results.

CalRecycle also awarded a contract to CSU Chico to establish a TDA technology Center similar to the one that was established for RAC. As part of this contract, CSU Chico will reevaluate the curriculum and education materials that were developed under a previous contract and survey California Universities to identify barriers for use of the curriculum and educational materials for educating future engineers.

Various technical documents from current and previous contracts were published on the CalRecycle website in 2011 and 2012. These included topics such as the health impacts of ground rubber in artificial turf, California tire market conditions, educational curriculum and guidance for TDA use. Copies of these reports can be found in CalRecycle's Publications Catalog at: http://www.calrecycle.ca.gov/Publications/Default.aspx

Further, as part of the Industry Wide Tire Business Assistance Program contract:

a) Caltrans use of TDPs – research on environmental and product performance data was conducted in order to addresses Caltrans' questions related to use of many TDPs. Company testing and other state standards are currently being compiled.

Industry Standards/Best Management Practices - Direct outreach to California crumb producers and TDP producers was conducted to identify priorities for new standard/practice development and end-of-life product management. As a result, seventeen TDP companies have volunteered to work with CalRecycle's Contractor to develop processing practices related to crumb rubber size distribution.

Market Development Program

The market development program will use the following measures to evaluate success in achieving its objectives:

1. **Increase the percentage of waste tires diverted from landfill disposal to 90 percent by 2015**.

   The overall waste tire diversion rate increased significantly from 81 percent in 2010 to 88percent in 2011. According to the *2011 California Waste Tire Market Report*, "Given sustained export increases and generally stable to growing domestic recycling markets, it appears likely that CalRecycle will achieve its 90 percent diversion goal in 2012." However, the increase is a result of continued, unprecedented rapid growth in the export of waste tires to the Pacific Rim nations, largely as TDF, which is now the largest single end-use destination for California waste tires. If waste tire export, alternative daily cover, and TDF were excluded, the 2011 diversion rate would be only 44 percent. While these markets are controversial, they play an important role in expanding diversion rate for California waste tires.

2. **Increase the amount (tons) of waste tires used in priority market segments, including rubberized asphalt concrete, molded and extruded products, civil engineering (transportation), etc.**

   According to the *2011 California Waste Tire Market Report*, rubberized asphalt concrete and other paving decreased slightly from 5 million PTEs in 2010 to 4.9 PTEs in 2011; molded and extruded products increased from 0.7 million PTEs in 2010 to 0.9 million PTEs in 2011; and civil engineering (non-landfill applicants) decreased from less than 0.1 million PTEs in 2010 to zero in 2011.

   To increase waste tire usage, CalRecycle has implemented a TDA Grant program for FY 2012/13 and is considering other incentives programs for crumb rubber for use in rubberized asphalt concrete (RAC) and as well as other tire derived products. CalRecycle is continuing to address the lack of familiarity of use of waste tires in civil engineering applications, specifically RAC and TDA, by increasing outreach efforts through the "Green Roads" campaign. In this campaign, CalRecycle used a combination of marketing and technical outreach activities to promote the benefits of using both products to local and state governments, contractors, and engineers in projects where these technologies are viable. In fact, CalRecycle past outreach efforts have resulted in the construction and design of numerous TDA projects and the participation of new RAC users into CalRecycle's rubberized pavement grant program. The success of these projects over the past few years demonstrates that technical challenges and environmental concerns can be overcome.

3. **Increase the number of state agencies that are contacted regarding procurement of priority products/uses and those that subsequently purchase such products or employ such uses.**

To improve the positioning of California TDP suppliers to sell products to targeted customer groups, over one hundred outreach presentations reaching over one thousand five hundred attendees have been made as of November 2012. Combinations of live presentations and webinars have served to educate and inform government and private entities about tire derived products. Audiences include Caltrans, state parks and recreation districts, California Department of General Services, state prisons, colleges and universities, county offices of education, school districts, County Engineers Association of California, and federal military, defense, architectural, and engineering entities.

When comparing data from fiscal years 2010/2011 and 2011/2012, as reported through the State Agency Buy Recycled Campaign (SABRC) reporting system, there was a four percent increase in SABRC reportable TDP purchases. The number of state agencies purchasing SABRC compliant TDPs remained constant at 40.

4. **Increase the purchase of tire-derived products by local jurisdictions (measured in tons and broken out by rubberized asphalt concrete, tire-derived aggregate, and other tire-derived products).**

   CalRecycle conducts an annual survey of the Tire-Derived Product (TDP) Grant Program after each grant cycle closes. The survey poses a variety of questions to determine Program effectiveness and TDP usage. The 2011 TDP survey covering FY 2005/06 – 2008/09 grant cycles, resulted in a 48 percent response rate. The survey results concluded that 33 percent of the grant recipients have purchased TDPs with their own funds since receiving the grant. For those who had not purchased TDPs with their own funds since the grant, 16 percent believed that their organization would purchase TDPs with their own funds in the future and 66 percent either did not respond or responded "uncertain" to this question. Eighty-four percent of respondents were satisfied or very satisfied with the performance of the TDP. One respondent was unsatisfied with the TDP.

   A similar survey was conducted of the Rubberized Pavement (Pavement) Grant Program (and its predecessor programs) grantees. The 2011 Pavement survey covering FY 2005/06 – 2009/10 grant cycles resulted in a 30 percent response rate. Sixty-five percent of the respondents indicated that they would use Rubberized Asphalt Concrete (RAC) even if grant funds were not available, 16 percent responded that they would not purchase RAC without a grant, and 19 percent indicated that they did not know. Forty-seven percent of the respondents stated that they had actually purchased RAC using their own funds after receiving a grant. Respondents indicating that they would use RAC without a grant provided the following reasons for choosing RAC (respondents were allowed the option of selecting more than one reason for this question.: product is long lasting and durable (47 percent), reduces landfill disposal of tires (35 percent), reduces noise (29 percent) and is cost effective (16 percent).

   Since the Tire-Derived Aggregate Grant Program was first offered in FY 2011/12, a survey has not been conducted.

5. **Provide business and technical assistance services to 20 businesses in each TBAP cycle.**

Twenty two businesses received services through the fourth cycle of TBAP grants. Included in the fourth cycle were five businesses that had not previously received a TBAP grant. A total of $2,512,377 worth of services was provided by the Contractor in the areas of general business assistance, technical assistance, marketing, and product testing. Grant recipients have indicated that the services they received through TBAP have been valuable to their businesses. Near the conclusion of the grant term, grantees will be surveyed to assess quantifiable information regarding specific benefits such as 2011 CA waste tire use, sales leads and increased sales.

6. **Reduce the number of waste tires generated in California from 1.1 to .9 per person per year by 2010.**

   As of 2011, the rate of tires generated per person per year was .92, which is a significant decrease from the 1.08 reported in 2009. According to the *2011 California Waste Tire Market Report*, "The sluggish California economy and an unemployment rate of more than 11 percent in the state in 2011 resulted in a continuation of the 2009 and 2010 situation where reduced miles were being driven and consumers waited longer to replace tires, which translated into reduced waste tire generation rates."

7. **Reduce the annual average of dollars awarded per ton diverted within individual grant programs (rubberized asphalt concrete, tire-derived products, and new tire-derived aggregate grants) over a five-year period (2011-2016).**

   This is a new performance measure. Chart 2 below describes the annual award amounts, estimated rubber usage (in Passenger Tire Equivalent [PTE]) and the average dollars awarded per PTE for the Pavement, TDP and the TDA Grant Programs.

Chart 2: Grant Program Awards, PTE, Average Amount Awarded per PTE

Fiscal Year 2011/12			
Grant Program	**Funds Awarded**	**PTE (estimated)**	**Amount Per PTE**
Pavement	**$7,791,104**	**843,580**	**$9.24**
TDP	**$7,437,680**	**1,865,068**	**$3.99**
TDA	**$259,233**	**945,600**	**$0.27**
Total	**$15,488,017**	**$3,654,248**	

8. **Increase regional capacity to produce chipped and shredded tire-derived aggregate for civil engineering projects.**

   CalRecycle's waste tire storage regulations were revised with respect to TDA handling and storage. A section of the regulations has been rewritten to clarify that TDA is a product and not a waste tire once it is sold and removed from the processing facility. This will simplify the logistics of project planning for storage and is important for projects where a stockpile is required prior to placement of the material.

Under the research contract awarded to CSU Chico, CalRecycle is reviewing the TDA specifications for the material. Samples of TDA from the various processors have been analyzed for specific engineering properties. Based on the data collected CalRecycle will be considering modifications to the TDA specifications that will allow more processors to manufacture the material while not jeopardizing the engineering performance.

9. **Increase in-state production and use of finer ground rubber (up to 60 mesh) for production of molded and extruded products and terminal blend.**

   According to the *2011 California Waste Tire Market Report*, in 2011 about 12.8 million pounds of ground rubber, derived from about 0.9 million Passenger Tire Equivalents, were used to produce molded and extruded products, a 28 percent increase in the estimated volume over 2010.

   60 mesh crumb rubber is used primarily in asphalt products such as asphalt coatings, sealants, and asphalt shingle products. Terminal Blend is a rubber paving technology in which 40 mesh crumb rubber is currently used in production. 60 mesh crumb rubber may be used, but since it is more expensive to produce 60 mesh as opposed to 40 mesh, it will likely increase the cost for producing Terminal Blend.

   Currently the number of California processors that can produce the 60 mesh rubber is very limited. CalRecycle is currently exploring grant options to promote the tire-derived products that will utilize and create demand for production of 60 mesh crumb rubber.

Appendix B: CalRecycle Border Activities

Used and waste tires continue to flow into Mexico through border entries, and a portion of these tires end up being illegally disposed along the border of California and Mexico. The waste tires that end up along these borders are either dumped illegally at various sites or used inappropriately for structural purposes in or near Tijuana, Mexico. CalRecycle has engaged in a wide range of activities to address these serious, shared risks to health and safety and the environment. This appendix lists the activities that CalRecycle has conducted in the past or that are planned.

Waste Tire Enforcement Support Activities

CHP Agreement to Support Enforcement Activities: Up until FY 2011/12, CalRecycle had an agreement with the California Highway Patrol (CHP) to provide law enforcement resources for tire enforcement work. In 2011, however, the CHP was unable to enter into an agreement with CalRecycle due to loss of appropriate CHP resources (in response to hiring freezes, budget cuts, and furloughs). Finally, in FY 2012/13 CalRecycle was able to enter into a new agreement with the CHP to once again provide assistance in statewide CalRecycle enforcement of waste tire hauling and disposal regulations which include activities along the border.

ARB Surveillance Assistance: Up until FY 2011/2012, CalRecycle had an agreement with the Air Resources Board to provide surveillance cameras and assistance in using those cameras for tire enforcement work. In 2011, the Department of General Services denied the new agreement because a large portion went towards purchase of cameras rather than for services. CalRecycle is pursuing a new agreement for 2012/13.

Training Support for Waste Tire Inspectors and Managers: Each year CalRecycle provides their annual technical training series that includes session for waste tire inspectors and managers. Sessions included; 1) Inspection Skills & Investigative Techniques for Waste Tire Field Inspectors, 2) Basic Waste Tire Facility Permitting Overview – the Key Components of Both, 3) Investigative Techniques and How to Involve Other Agencies in Investigation and Prosecution (Tire), 4) Tire Evidence Collection and Case File Preparation, 5) Effective Report Writing for Tire Inspections, 6) Tire Surveillance Case Study, and 7) a tour of a local tire-derived product producer.

Analysis of Targeted Study Areas for Waste Tire Enforcement: The California/Mexico Border Tire Flow Study found that about 750,000 tires were taken across the border legally as used tires because there was a market in Mexico. An additional 10 percent (75,000) were taken across the border illegally. Since the number of tires taken into Mexico illegally was relatively low, CalRecycle decided not to pursue an additional tire flow report. Instead CalRecycle decided to pursue a report that would provide technical assistance for Baja California in the development of integrated waste tire management plan.

Hauler Manifest and Compliance

The Tire Hauler Compliance Unit (THC), which includes the waste tire hauler manifest system, continues to be successful in having Mexican tire haulers become registered with CalRecycle; currently, there are 48 registered waste tire haulers from Mexico. The unit has 5 Spanish-speaking staff, allowing easier and more receptive communications with the Spanish-speaking regulated community. Additionally, the unit has established a toll-free Waste Tire Hotline number for Mexico. In 2007-08, 77 Mexican tire haulers were trained on California's waste tire manifest program's regulations and requirements and hauler check-point participation; this training was carried out with cooperation from the Association of Used

Tire Dealers for the Mexican States of Baja California, Baja California Sur, and Sonora. On-site training has not occurred for the past several years due to safety concerns across the border and staffing and travel constraints; however, staff has worked closely with southern California tire generators who assist in providing the initial contact between new Mexican tire haulers and CalRecycle. The unit continues to work closely with CalRecycle Enforcement staff and Tire Enforcement Grantees to record locations where waste tires are being illegally dumped and to determine their source.

Cleanup Activities

CalRecycle has been the lead on a major cleanup in the Tijuana area. Large quantities of trash, tires, and sediment are transported by storm water from Mexico into the Tijuana River Valley and estuary, adversely impacting Border Field State Park and the Tijuana River National Estuarine Research Reserve. The Tijuana River Recovery Team is a collaborative partnership of agencies and organizations to address the broad range of issues affecting the watershed. To spearhead this effort, in 2010 CalRecycle developed and implemented a project with California State Parks to capture tires and solid waste currently discharged to Goat Canyon within Border Field State Park. The Goat Canyon cleanup project removed tires, trash, and sediment from the debris basin and installed a debris netting and capture system to collect ongoing storm water-related sources of tires and trash from Mexico prior to discharge and environment impact to the estuary. The project cost approximately $2 million and included a related consultant study to evaluate the nature and extent of trash, waste tires, and sediment in the Tijuana River Valley.

In September 2012, CalRecycle approved funding again for the Department-managed cleanup of the Border Field State Park illegal disposal site, Tijuana River Valley and Estuary goat canyon trash capture and removal system cleanout. This project was completed in January 2013, at a cost of approximately $1 million and removed accumulated refuse laden sediment from the basins and screened material for future studies and use. The California Department of Parks and Recreation contributed $300,000 to the cleanup project. CalRecycle is currently working to develop potential new cleanup project concepts in the Tijuana River Valley.

In addition, CalRecycle implements two local government cleanup grant programs that include projects in the border region. During FYs 2009/10 and 2010/11, approximately $472,000 in Local Government Waste Tire Cleanup Program grants were awarded in the border region (Imperial County, San Diego County, and the City of San Diego), which resulted in the cleanup of an estimated 78,000 waste tires. This represents 22% of the total Cleanup grants awarded ($2,109,414) statewide. During the same period, slightly over $122,000 in Local Government Waste Tire Amnesty Program grants were awarded in the region, which resulted in the cleanup of an estimated 25,000 waste tires. This represents 5% of the total Amnesty grants awarded ($2,675,463) statewide. CalRecycle did not award any Local Government Waste Tire Cleanup or Local Government Waste Tire Amnesty grants during FY 2011/12.

Research, Bi-National Collaboration, and Technical Assistance Activities

Study on the Flow of Used and Waste Tires from California and Mexico: Mexico imports used tires from California that have a very short lifespan. Many of these imported tires are illegally disposed of and may cause environmental hazards. Illegally disposed of tires on the Mexican side of the border have caused environmental issues in California, e.g., tires entering the Tijuana Estuary and smoke from tire fires in Mexicali dispersing into Calexico. This study found that about 750,000 tires were taken across the border legally as used tires because there was a market in Mexico. An additional 10 percent (75,000)

were taken across the border illegally. In 2009 the California Integrated Waste Management Board decided not to pursue an additional tire flow study and instead to pursue activities that were already underway such as work with the CHP, translation of educational materials into Spanish, etc. A copy of the report can be found at: http://www.calrecycle.ca.gov/Publications/Detail.aspx?PublicationID=1338

Bi-national Program Participation: In the past, CalRecycle has participated with the Resource Conservation Challenge Border Group, California Biodiversity Council, Biodiversity Along the Border Committee, 2008 Border Governors Conference, and the Border 2012 Program. Currently, CalRecycle continues to participate with the Tijuana River Valley Recovery Team and looks forward to participating with the newly formed Border 2020 U.S.-Mexico Environmental Program to resolve the problems caused by illegally dumped waste tires along the border region.

The Border 2012 program (also known as the U.S.-Mexico Environmental Program) was a broad environmental collaborative with bi-national entities, coordinated by (and with funding from) the U.S. EPA. Important components of the Border 2012 program included community outreach, training, technical support and cleanup addressing waste tire sites near or along the California-Mexican Border. The program accomplished cleaning up of both the INNOR and El Centinela scrap tire sites in Baja California, which combined contained over 1,250,000 tires. These tires were shredded and used as fuel in various cement kilns in México. To date, over 6.8 million tires overall have been recovered in the border region through the partnership. Cal/EPA was the lead State partner in Border 2012 and CalRecycle continues to collaborate as necessary through Cal/EPA and Border 2020 to help develop community outreach, additional training and technical support to Mexican Tire Haulers, and training for CHP Commercial Officers who work along the California-Mexico borders.

Technical Assistance for Baja California's Development of Integrated Waste Tire Management Plan:
In January 2011, CalRecycle entered into a contract with the University of California Berkeley to provide *Technical Assistance for the Creation of a Methodology for the Development of a Model Integrated Waste Tire Management Plan Framework for the State of Baja California, Mexico*. The final report was published in November 2012 and can be found in English and Spanish at: http://www.calrecycle.ca.gov/Publications/Detail.aspx?PublicationID=1440

Sharing Environmental Education Materials In the Border Region: SB 772 (Ducheny, Statutes of 2005, Chapter 214) required CIWMB (now CalRecycle) to work with Mexico in areas related to waste and used tires, and environmental education and training. In coordination with the Office of the Secretary for Environmental Protection-Border Affairs and the CIWMB's Office of Education and the Environment, the Tire Program will develop a mechanism with Mexico's Secretariat for Public Education (SEP), Baja California's Secretaría de Protection Ambeintal, and the Baja California's Education System (SEBS-ISEP) allowing for bi-national distribution of the Cal/EPA-CIWMB's environmental education curriculum entitled "Conservation and Pollution Prevention at a Shared Border". This elementary school curriculum includes lessons that are relevant to prevalent border conditions (e.g., land, water, and air pollution) and is consistent with existing environmental education and training principles in Mexico. In 2007-08 both English and Spanish versions of the curriculum were provided to 12,000 border teachers, educators, and schools. This curriculum contains scientific and resource-based lessons regarding the border area, with key steps toward environmental sustainability. CalRecycle's 2007 Waste Tire Conference, held in San Diego, included two training workshop for border teachers.